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## SYNOPSIS OF THE NORTH AMERICAN SPECIES OF XYLARIA AND PORONIA.

BY J. B. ELLIS AND B. M. EVERHART.

XYLARIA, Hill. Hist. Plant (1773), pp. 62 and 63.

Stroma erect, round, clavate or subglobose, mostly stipitate, suberose or coriaceous; perithecia adnate or immersed in the stroma, coriaceo-carbonaceous; asci subcylindrical; sporidia ovoid or subnavicular, continuous, dark.

A. XYLOGLOSSA. Capitulum everywhere fertile, stem smooth.

*a. Capitulum clavate, stem slender, elongated.*

1. XYLARIA EUGLOSSA, Fr. Nov. Symb., p. 124.

Stroma clavate, thickened above, obtuse, smooth, clay colored, black-punctate by the minute ostiola, within whitish-cinereous, becoming darker towards the surface; perithecia entirely immersed, globose, black, stipe slender, elongated, glabrous, turning black. Found in Costa Rica by Oersted.

This species resembles *Geoglossum difforme*, but is larger, 3—4 inches high and, in the dry state, at least, is longitudinally rugose, often arcuate-incurved or twisted and almost as hard as stone; stipe over an inch long, but scarcely exceeding a line in thickness, equal, glabrous, longitudinally rugose when dry. The club in form and color resembles *Clavaria ligula*, but is paler, properly black, but appearing as if smeared over with alutaceous-clay color, obtuse above and distinct from the stipe; asci slender, linear, evanescent; sporidia uniseriate, oblong, acute at each end, continuous, opaque, occasionally curved.

2. XYLARIA PROTEA, Fr. l. c., p. 125.

Stroma suberose-indurated, lanceolate, obtuse, wrinkled, bare, white within, stipe slender, equal, glabrous; perithecia globose, subimmersed, peripheric, depressed-hemispheric, with rather prominent ostiola. On trunks in Costa Rica. Oersted.

Resembles *X. corniformis*, Fr., which, however, differs in its obsolete stipe and villous base, while this, like the preceding species, has the stipe slender, very smooth and varnished and so fragile that there is hardly a whole one in the collection, about a line thick and, in the dry state, longitudinally cavernose-rugose; club about 1½ inches long and one fourth of an inch thick, obtuse, bare, opaque, black and at the first glance appearing rimose-corrugated, but in reality the surface is densely colliculose by reason of the slightly prominent perithecia, with depressed papilliform ostiola. The perithecia are rather large, exactly globose, peripheric, not very regularly arranged and have a dark-colored nucleus. The asci and sporidia are almost the same as in the preceding species.

3. XYLARIA RHOPALOIDES (Kunze) Mont. Ann. Sci. Nat., 1885, III, p. 99, and 1840, XIII, Cent. II, No. 27.

We find under these references no detailed description of this species, but in Cooke's figure in Grev., pl. 163, fig. 14, it is represented as subcæspitose, the short stem-like base dividing above into two clavate-cylindrical, ferile branches. Saccardo, in Syll. I, p. 326, says the asci are briefly stipitate, cylindrical, 8-spored, sporidia 8—10 *u* long (10 x 5 *u*, sec. Cooke, in Grev. XI, p. 82.)

4. XYLARIA MULTIFIDA (Kunze) sec. Lev. Ann. Sci. Nat., 1845, III, p. 45. The following description of this species as copied from Grev. XI, p. 85:

"Stromate conidiifero erecto, furcato-partito, palmatoque, albido; stromate ascigero simplici, atro, erecto, clavato; stipite æquilango, tenui, atro, glabro (?); peritheciis globosis, atris, prominulis; ascis cylindraceis, stipitatis; sporidiis fusiformibus, obtusis, inæquilateralibus, fuscis, (.01—.012 x .004—.005.) On trunks. Java and Central America. In Herb. Paris. Greatly resembles *X. Hypoxylon*, of which it may be a variety."

5. XYLARIA TENTACULATA, Rav. MS. Journ. Linn. Soc. X, p. 381; *X. tentaculata*, B. & Br., Grev. IV, p. 48.

Stipe weak, elongated, slender, glabrous; head short-cylindrical, roughened by the ascending ostiola; apex adorned with flagelliform processes. On decaying wood. June. South Carolina, 1½ inches high. No. 603 is a variety in which the processes have short, patent branchlets resembling somewhat *X. comosa*, but without its velvety skin. (Linn. Journ., l. c.) The characters given in Grevillea are as follows: "Stipe elongato glabro fusco; capitulo brevi cylindrico, processibus tentaculiformibus coronato. In shaded swamps, among mosses and rotten wood. Car. Inf., Ravenel, No. 1,300. Stem one inch high, not a line thick; head cylindrical, 1—2 lines long, ostiola prominent, tending upwards, crowned by several tentacular processes about one half an inch long. Allied to *Xylaria comosa*, Mont."

6. XYLARIA OLOBAPHA, Berk., in Herb. Kew., Grev. XI, p. 84.

"Stroma erect, clavate, rufous, attenuated below into a short, slender, glabrous, equal stipe; perithecia globose, black, ostiola punctiform, flat; asci cylindrical, stipitate; sporidia lanceolate, curved or straight, fuscous, 20—22 x 8½ *u*. On trunks, Brazil, Mexico. Whole plant 2—2½ inches high, of which the club occupies half; club 1 cm. thick."

*b. Capitulum subclavate; stem thick, abbreviated or obsolete.*

7. Xylaria polymorpha (Pers.) Grev. Flor. Edin., p. 35; Nitschke Pyr. Germ., p. 17; *Sphæria polymorpha*, Pers., Comm., p. 17.

Stromata fasciculate or tufted, 2—6-connate at base, or more rarely solitary, erect, thick, glabrous, dark argillaceous, becoming black, sometimes simple and terete, more or less attenuated at the base and apex, or quite obtuse and subcylindrical, or compressed and obovate, or emarginate, or furcately branched, or sometimes nearly globose, the entire surface—except the very short or nearly obsolete stipe—roughened by the slightly prominent, rather large (½—¾ millim.), ovate, closely-packed perithecia; asci cylindrical, with a very long, stipitate, slender base, 140—180 x 8—10 *u* (spore-bearing part 100—120 *u* long); sporidia uniseriate, subfusoid or navicular, often more or less curved, subacute at each end or rarely obtuse, pale at first, with 1—2 nuclei, soon opaque, 20–30 x 5—9 *u*. Around the base of old stumps, etc. Common throughout the United States and Canada.

8. Xylaria Titan, B. & C. Grev. IV, p. 47.

"Gigantea allantoidea dura, extus albida; ostiolis nigris prominentibus, Texas, Lindheimer, No. 2,676. Five inches long, two inches wide, sausage shaped, convex on one side, hollow on the other, hard, solid, dirty-white, stained with the sporidia and dotted with the prominent ostiola."

9. Xylaria fulvella, B. & C. Linn. Journ., X, 380.

"Clavata, rubiginosa, papillata; peritheciis semiprominulis, ostiolis nigris; stipite cylindrico, pallide fulvo lineato-rugoso (590). On dead wood. Alabama (No. 4,902). Sporidia oblong, .0003 inch long, closely allied to an Australian species, *X. phosphoria*, B., but differs in the absence of the white ring around the ostiolum." Found also in Cuba.

*c. Capitulum subglobose.*

10. Xylaria cudonia, B. & C. Grev. IV, p. 47.

On rotten trunks, Santee Canal, So. Ca. (Ravenel.) Appearing somewhat as if varnished; stipe short (twelve millim. high, four millim. thick) dilated above; head hemispheric, twelve millim. in diameter, papillate, roughened by the slightly prominent perithecia; ostiola very small. Cooke, in Grev. XI, p. 82, states that the sporidia are almond-shaped, 13 x 8 *u*.

11. Xylaria clavulus, B. & C. On decaying culm of some grass in Texas.

"Parva seriata; stipite brevi, crassiusculo penetrante; capitulo convexo." Saccardo, in Syll I, p. 323, says: "Stroma about 2—3 millim. high, not varnished (laccate) texture rather firm; a beautiful but minute species.

B. Xylocoryne. Club everywhere fertile; stem villose.

a. Capitulum clavate; stem elongated, slender.

12. XYLARIA FASTIGIATA, Fr. Nov. Symb., p. 127 (Linn. Trans., 1830, p. 536).

Densely cæspitose-connate, fistulose, black; clubs short, oblong or cylindric, obtuse, papillose-scabrous; perithecia immersed, peripheric, globose, ostiola papilliform. On trunks in Costa Rica. (Oersted.) Stipes densely packed, joined at base and often ramose-concrescent, compressed, angular, often torulose and flexuous, an inch or more long and about a line thick, not truly villose, but covered at first with a dark, oppressed, subleprous coat; club not distinct from the stipe, comparatively small, slightly swollen, scarcely over two lines thick, unequal, bare, fastigiate, black; perithecia in a thin, black, peripheric layer, small, globose, slightly prominent, decurrent on the stipe; sporidia oblong, curved, opaque.

13. XYLARIA MULTIPLEX (Kze.) Fr. On trunks in Mexico. (Hœgberg.)

Cæspitose, suberose, brown-black, clubs terete-compressed, subdivided, smooth, white inside; stipes elongated, leprose-villose; perithecia entirely immersed, globose, crowded; ostiola punctiform, becoming somewhat dilated; sporidia ovoid, 20—22 *u* long.

14. XYLARIA GEOGLOSSUM (Schw.) Jour. Acad. Nat. Sci., Phil., Vol. V, tab. 1, fig. 4. Sent by Dr. Torrey from New York. Habitat not noted.

Carnose suberose, simple, very black; club tongue-shaped, compressed, somewhat grooved, falcate, obtuse at the apex; perithecia oblong, black, somewhat prominent; ostiola minute, scarcely prominent; stipe three times longer than the club, subsquamulose, hairy at the base, slender, suberose, black outside, white within. Resembles a *Geoglossum*. Whole plant about one inch high ("pollicem altus.")

15. XYLARIA CORNIFORMIS, Fr. Summ. Veg. Scand., p. 381.

Stroma simple, club-shaped, 1—1½ inches high and about one fourth of an inch thick, obtuse at the apex, light brown at first, finally black; stem short (one fourth of an inch) hairy, attached to the matrix by an enlarged subdiscoid base; perithecia subglobose, only slightly prominent, small; ostiola papilliform, minute; asci cylindrical, on long pedicels, 8-spored, spore-bearing part 60—75 x 6—7 *u*; sporidia obliquely uniseriate, somewhat inequilateral or nearly straight, rounded at each end and obtuse, opaque, 8-10 x 5 *u*. Common from New York to Florida on decaying limbs and logs. At Newfield, N. J., it is confined almost exclusively to fallen trunks of *Magnolia glauca*. It does not seem to be as abundant and common in the western and Pacific states. *Sphæria flabelliformis*, Schw., is an abortive state of this species, in which the short stem, instead of being surmounted by a fertile club, is divided above in a fimbriate or brush-like manner into many short, acute branches, the whole rising only to the height of about one fourth of an inch, forming a small, light, reddish or flesh-colored tuft filled with abundant, minute conidia.

C. XYLOSTYLA. Apex of the club sterile, stem smooth.

*a. Head clavate, simple or crested.*

16. XYLARIA GRAMINICOLA, Ger. 26th Rep. N. Y. State Mus., p. 85. "Club slender, cylindrical, simple, at first greenish-pulverulent, then blackish brown, roughened by the prominent, globose perithecia, tips sterile, acuminate; stem smooth, straight or flexuous, brown; spores uniseriate, unequally elliptical, .0004 x .0002 inches. Plant about two inches high, parasitic on the roots of languishing grasses. Allied to *X. Hypoxylon.* Poughkeepsie, N. Y. Gerard.

17. XYLARIA MUCRONATA (Schw.) On trunks of *Liriodendron.* Carolina (Schweinitz.) *Sphæria mucronata,* Schw. Syn. Car., Journ. Acad. Nat. Sci., V, tab. 1, fig. 1.

Carnose, simple, stem liver-color (badius) subsquamulose, inflexed, compressed, one inch high, four lines thick; club thickened, irregular, becoming light yellow, apex mucronate; perithecia rather large and prominent, with globose, black ostiola; sporidia subglobose and black.

*b. Capituli connate or branched.*

18. XYLARIA DIGITATA (Linn.) Grev. Flor. Ed., 356; Nitschke Pyr., Germ., p. 9; Fr. S. M., II, p. 326. On decaying wood. New York (Peck), Carolina and Pennsylvania (Schweinitz), Texas (Lindheimer).

Stroma erect, thick, dark brown, leproso-velutinous, becoming smooth, round and simple, gradually attenuated at the apex, more rarely obtuse, or emarginate, or divided into 2—3 dichotomously cleft branches, sometimes clavate-columnar, 3—4 cm. high, flattened and dilated above, with the apex subdentate lobed. (The specimens in Rav. Car., V, No. 50, are of this sort.) Asci cylindrical, with a long, slender stipe, 8-spored; sporidia obliquely uniseriate, fusoid, obtuse, inequilateral, dark brown, 18—20 x 5—6 *u.* All the American specimens we have seen have the sporidia smaller, 10—12 x 4—5 *u.* Prof. Peck, in 30th Rep., p. 76, and 31st Rep., p. 79, has noted this peculiarity and distinguished our short-spored form as var. *Americana.* No form of this species has as yet been noticed around Newfield.

19. XYLARIA GRANDIS, Pk. 26th Rep. N. Y. State Mus., p. 85. On the ground. Portage, N. Y. (Clinton).

"Large, blackish-brown, irregular, obtusely pointed and rusty brown at the sterile tip, abruptly narrowed at the base; central substance white; perithecia subglobose; spores subfusiform, pointed at each end, straight or slightly curved, .0008—.0009 inches long; stem branched, radiating, often greatly elongated; plant 3—5 in. high, heads 1½—3 in. long, ¾—1 in. thick. The branching stem and pointed, sterile apices of the clubs separate this from *X. polymorpha,* which it also surpasses in size. The larger spores distinguish it from *X. digitata.*"

*c. Stroma filiform.*

20. XYLARIA FILIFORMIS (A. & S.) On decaying leaves. Carolina (Ravenel), New Jersey (Ellis).

Stroma filiform, 3—5 cm. long and mostly less than one millim. thick at the base, gradually attenuated above, subundulate, white pruinose at first, with the apex inclining to flesh color, but finally smooth, black and shining; perithecia conic-hemispheric, 200—250 *u* in diameter, not crowded, seated on the stroma about midway or a little above the middle and extending along for about one cm.; ostiolum short, conic, acute; asci 75—80 x 7-8 *u* (exceptionally 100 *u* long), spore-bearing part 65-75 *u* long; sporidia mostly biseriate, pale olive brown, fusoid, often a little bulging on one side, 14-18 x 8-3½ *u*; paraphyses none. At Newfield, this occurs mostly on fallen leaves of *Magnolia glauca*. The specimens in Rav. Car and in N. A. F. are sterile, but fertile specimens have now been found and will be again distributed.

D. XYLODACTYLA. Apex sterile, stem villose.

*a. Capitulum clavate, simple.*

21. XYLARIA TRACHELINA, Lev. (Sphæria, Cordyceps trachelina, Lev., Ann. Sci. Nat., 1860, V. 304).

Clubs elongated, rugose, tuberculose, apices acute, sterile, sooty-black, white within, stipes very long, tomentose; perithecia globose, prominent, black within; ostiola obsolete; asci cylindrical; sporidia obtusely lanceolate, dark, 20 x 7 *u*; stipe one half an inch high; club one inch long, one eighth to one third of an inch thick. On trunks. New Granada, South America. We have included this species, as it is not improbable that it will be found in the contiguous territory of Central America.

22. XYLARIA PERSICARIA, Schw. Syn. Car., No. 9. On buried peach pits. Carolina (Schweinitz).

Cæspitose, stem flexuous, rarely branching, rooting, three inches long and over, as thick as a crow's quill, at first covered with a greenish, villose coat, at length black; perithecia about midway, very prominent; club white, changing to a flesh-colored or yellowish tint. Where the peach stones from which it grows lie deep in the ground, the stem is sometimes six inches long.

(To be continued.)

# NEW KANSAS FUNGI.

BY J. B. ELLIS AND W. A. KELLERMAN.

PHYLLOSTICTA IPOMÆÆ, E. & K.—On leaves of *Ipomœa pandurata*. Mound City, Kansas, July, 1887. W. A. Kellerman. Spots amphigenous, rusty brown, suborbicular, 2—4 millim., with a dark, narrow border; perithecia scattered, immersed, slightly projecting above; sporules elliptical, 2-nucleate, hyaline, 4—6 x 2½—3 *u*.

PHYLLOSTICTA SPINOSA, E. & K.—On leaves of *Sida spinosa*. Manhattan, Kansas, June, 1887. W. T. Swingle. Spots amphigenous, round, small (1—3 millim.), white above, rusty white below, border mostly purplish-shaded; perithecia mostly in the center of the spots, punctiform, black, slightly prominent; sporules oblong, 2-nucleate, 12—14 x 4—5 *u*. The spots on the lower side of the leaf are covered with tufts of brown,